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In the Supreme Court of the United States

OCTOBER TERM, 1959

UNITED STATES OF AMERICA, PETITIONER

v.

RAYMOND SAULNIER

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF CLAIMS

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INDEX

	Page
Opinion below	1
Jurisdiction	1
Question presented	1
Statutes involved	2
Statement	4
Reasons for granting the writ	6
Conclusion	13
Appendix A	14
Appendix B	45

CITATIONS

Cases:

Atlantic Works v. *Brady*, 107 U.S. 192 7
Badowski v. *United States*, 135 C. Cls. 93 11
Blish, Mize and Silliman Hardware Co. v. *Time Saver Tools*, 236 F. 2d 913, certiorari denied, 352 U.S. 1004 11
Busell Trimmer Co. v. *Stevens*, 137 U.S. 423 10
Carbice Corp. v. *American Patents Co.*, 283 U.S. 420 10
Concrete Appliances Co. v. *Gomery*, 269 U.S. 177 11
Crest Specialty v. *Trager*, 341 U.S. 912 7
Cuno Engineering Corp. v. *Automatic Devices Corp.*, 314 U.S. 84 ..... 8, 11
Densmore v. *Scofield*, 102 U.S. 375 11
Florsheim v. *Schilling*, 137 U.S. 64 10
Fond Du Lac County v. *May*, 137 U.S. 395 10
Great Atlantic & Pacific Tea Co. v. *Supermarket Equipment Co.*, 340 U.S. 147 ..... 8, 9, 10, 11
Grinnell Washing Machine Corp. v. *Johnson Co.*, 247 U.S. 426 10
Heald v. *Rice*, 104 U.S. 737 10
Hendy v. *Miners' Iron Works*, 127 U.S. 370 12
Hotchkiss v. *Greenwood*, 11 How. 248 10

Cases—Continued

	Page
Lincoln Engineering Co. v. *Stewart-Warner Corp.*, 303 U.S. 545	10
Lyon v. *Bausch & Lomb Optical Co.*, 224 F. 2d 530, certiorari denied, 350 U.S. 911	11
Mantle Lamp Co. v. *Aluminum Products Co.*, 301 U.S. 544	11
Marconi Wireless Telegraph Co. v. *United States*, 320 U.S. 1	10
Pickering v. *McCullough*, 104 U.S. 310	10
R. M. Palmer Co. v. *Luden's, Inc.*, 236 F. 2d 496	11
Reckendorfer v. *Faber*, 92 U.S. 347	7, 10, 11
Richards v. *Chase Elevator Co.*, 158 U.S. 299	10
Stanley Works v. *Rockwell Mfg. Co.*, 203 F. 2d 846, certiorari denied, 346 U.S. 818	11
Thatcher Heating Co. v. *Burtis*, 121 U.S. 286	10
Toledo Pressed Steel Co. v. *Standard Parts, Inc.*, 307 U.S. 350	10
Zonolite Co. v. *United States*, 138 C. Cls. 114	11
Statutes:	
28 U.S.C. 1498	2, 4, 13
35 U.S.C. 101	2
35 U.S.C. 102	3
35 U.S.C. 103	3, 11
35 U.S.C. 282	3
Miscellaneous:	
Court of Claims Rule 38(c)	6

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UNITED STATES OF AMERICA, PETITIONER

v.

RAYMOND SAULNIER

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF CLAIMS

The Solicitor General, on behalf of the United States, prays that a writ of certiorari issue to review the judgment of the United States Court of Claims entered in this case on January 20, 1960.

OPINION BELOW

The opinion of the Court of Claims is reported at 180 F. Supp. 412, and is set forth in Appendix A, pages 15–43, *infra*.

JURISDICTION

The judgment of the Court of Claims was entered on January 20, 1960 (App. A, *infra*, p. 15). By order dated April 18, 1960, the Chief Justice extended the time for petitioning for certiorari to and including May 10, 1960. The jurisdiction of this Court is invoked under 28 U.S.C. 1255(1).

QUESTION PRESENTED

Whether the Court of Claims has improperly lowered the standard of invention in holding patentable

a combination of two old devices, both known to the prior art, even though, in the combination, each of the two old devices achieves its distinct and independent result without coacting or cooperating with the other device to achieve any new result over and above the two results achieved by the old devices acting singly.

STATUTES INVOLVED

Title 28 of the United States Code provides in pertinent part:

> § 1498. Whenever an invention described in and covered by a patent of the United States is used or manufactured by or for the United States without license of the owner thereof or lawful right to use or manufacture the same, the owner's remedy shall be by action against the United States in the Court of Claims for the recovery of his reasonable and entire compensation for such use and manufacture.
>
> For the purposes of this section, the use or manufacture of an invention described in and covered by a patent of the United States by a contractor, a subcontractor, or any person, firm, or corporation for the Government and with the authorization or consent of the Government, shall be construed as use or manufacture for the United States.

Title 35 of the United States Code provides in pertinent part:

> § 101. Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful

improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

§ 102. A person shall be entitled to a patent unless—

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, * * *

§ 103. A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

* * * * *

§ 282. A patent shall be presumed valid. The burden of establishing invalidity of a patent shall rest on a party asserting it.

The following shall be defenses in any action involving the validity or infringement of a patent and shall be pleaded:

* * * * *

(2) Invalidity of the patent or any claim in suit on any ground specified in part II of this title as a condition for patentability,

* * * * *

STATEMENT

Respondent brought this suit against the United States in the Court of Claims under 28 U.S.C. 1498 to recover for infringement of an alleged invention covered by United States Letters Patent No. 2,125,752, issued to respondent on August 2, 1938. The alleged invention, entitled "Removable Roof for the Cockpits of Aircraft,"[1] is actually an assembly of two devices. The first device enables the pilot of a cockpit-type airplane to slide the canopy, or roof, of the cockpit backwards and forwards to any desired position, for egress and ingress to the cockpit when the plane is on the ground, and for the intake and shutting out of air in normal flight. The device consists of a pair of carriages, which, as permanent parts of the airplane, slide along tracks placed on either side of the fuselage. The cockpit canopy is fitted over the cockpit and attached to the carriages. The carriages are connected by a series of gears and levers to a hand crank or other means of mechanical power by which the pilot can slide the carriages, and thus the canopy, back and forth. The second device enables the pilot to detach the canopy from the carriages instantaneously so that, in a flight

[1] The claims in suit and the specifications and drawings of respondent's patent are set out in the Court of Claims' findings of fact (App. A, *infra*, pp. 20–43).

emergency, he can quickly jettison the canopy and "bail out" without obstruction from the canopy. This second device consists of a handle located in the roof of the canopy and connected by cords, levers, and rods to each of the clamps by which the canopy is attached to the sliding carriages. When the handle is pulled, the cords, levers and rods operate to unlock all of the clamps simultaneously. The pilot jettisons the canopy by lifting it slightly upwards, so that the wind will pull it from the plane.

The United States raised the defense that the patent was invalid for lack of invention over the prior art. The case was referred to a trial commissioner who, after hearing the evidence, found that the two elements covered by the patent in suit had been disclosed in prior patents (App. B, *infra*, pp. 45–50) and concluded that the claims in suit were invalid. The commissioner summarized his findings as follows:

> * * * claims 1, 2, 3, 4, 6, and 7 of the patent in suit are found to be invalid over the disclosures of prior patents (1) in that these patent claims merely recite old combinations of old elements producing no new or unexpected results, and (2) in that the differences between the terminology of these claims and that of the prior art patent are such that the subject matter as a whole would have been obvious, at the time the Saulnier construction was devised, to a person having ordinary skill in the field of removable roofs for the cockpits of aircraft [App. B, *infra*, p. 49].

The Court of Claims rejected those findings. While the court found that both the sliding and detaching devices had been anticipated by the prior art,[2] it held the Saulnier patent valid, since, in its view, the two devices in combination constituted a patentable invention, even though each of the two devices operated separately and independently and "did not act conjointly" with the other (App. A, *infra*, p. 16). Having also found that the patent was infringed by the United States, the court entered judgment that respondent was entitled to recover compensation for the Government's "unlicensed use of [his] patented invention" (App. A, *infra*, p. 43).[3]

REASONS FOR GRANTING THE WRIT

The decision below, if left standing, will mean that limitless numbers of combinations, heretofore thought unpatentable, are now to be made the subjects of

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[2] The court's findings indicate that the sliding device was disclosed in prior patents issued to Sutton, Joyce, Hathorn, Alexander, Pivak, Petters, and Boulton (App. A, *infra*, pp. 28–31). In its opinion, the court indicated its belief that the Sutton, Joyce, Hathorn, Petters, and Boulton patents contained the sliding device (App. A, *infra*, pp. 16–17), but stated that the Alexander and Pivak patents, "obviously do not anticipate" the claims in suit. The court's findings indicate that the prior patents issued to Hicks, Hall and Helwig contain the detaching device (App. A, *infra*, pp. 27, 30, 31). However, the court's opinion mentions only the Hicks' patent as containing the detaching device (App. A, *infra*, p. 17).

[3] A determination of the amount of damages which may be due the respondent for infringement has been reserved under Court of Claims Rule 38(c) until the issue of the United States' liability has been finally determined (see App. A, *infra*, p. 43).

patent monopolies. Thus, even if correct, the decision is of such far-reaching importance as to require review by this Court. Moreover, the decision below constitutes a clear error of law (*Crest Specialty* v. *Trager,* 341 U.S. 912; *Great Atlantic & Pacific Tea Co.* v. *Supermarket Equipment Corp.,* 340 U.S. 147) in departing from, and conflicting with, long standing principles worked out by this Court in defining the standards of invention or patentability.

1. The most serious error in the decision below—and the one with the most far-reaching consequences—is the court's pronouncement that the combination in issue is patentable in spite of the court's conscious and expressed awareness (see p. 6, *supra*) that the combination consisted solely of two old devices which do not coact or cooperate to achieve any new result over and above the results achieved by the two old devices acting singly.

If anything is settled in our patent law, it is that such combinations may not be rewarded with patent monopolies. A long line of decisions by this Court, stretching back over the past century, have firmly established this rule. Thus, in *Reckendorfer* v. *Faber,* 92 U.S. 347, the Court held invalid a patent on a combination, in the same wooden holder, of a lead pencil and an eraser, both of which were old in the art. In *Atlantic Works* v. *Brady,* 107 U.S. 192, the Court held invalid a combination in a single boat of a dredging device and a device for sinking the boat to any desired level, both of the devices having been used before. In *Cuno Engineering Corp.* v.

Automatic Devices Corp., 314 U.S. 84, the Court held unpatentable a combination of an automatic cigarette lighter and a thermostatic control, both known to the art. And again reiterating the same rule, the Court, in *Great Atlantic & Pacific Tea Co.* v. *Supermarket Equipment Co.*, 340 U.S. 147, reversed the Sixth Circuit and held unpatentable a combination of a store counter and a rack for moving the goods along the counter, each of which were known to the prior art. There, the Court said (340 U.S. 151–153):

> The negative rule accrued from many litigations was condensed about as precisely as the subject permits in *Lincoln Engineering Co.* v. *Stewart-Warner Corp.*, 303 U.S. 545, 549: "The mere aggregation of a number of old parts or elements which, in the aggregation, perform or produce no new or different function or operation than that theretofore performed or produced by them, is not patentable invention." To the same end is *Toledo Pressed Steel Co.* v. *Standard Parts, Inc.*, 307 U.S. 350, and *Cuno Engineering Corp.* v. *Automatic Devices Corp.*, 314 U.S. 84. The conjunction or concert of known elements must contribute something; only when the whole in some way exceeds the sum of its parts is the accumulation of old devices patentable. Elements may, of course, especially in chemistry or electronics, take on some new quality or function from being brought into concert, but this is not a usual result of uniting elements old in mechanics. This case is wanting in any unusual or surprising consequences from the unification of the elements here concerned, and there is nothing to indicate that the lower

courts scrutinized the claims in the light of this rather severe test.

Neither court below has made any finding that old elements which made up this device perform any additional or different function in the combination than they perform out of it. This counter does what a store counter always has done—it supports merchandise at a convenient height while the customer makes his purchases and the merchant his sales. The three-sided rack will draw or push goods put within it from one place to another—just what any such a rack would do on any smooth surface—and the guide rails keep it from falling or sliding off from the counter, as guide rails have ever done. Two and two have been added together, and still they make only four.

Courts should scrutinize combination patent claims with a care proportioned to the difficulty and improbability of finding invention in an assembly of old elements. The function of a patent is to add to the sum of useful knowledge. Patents cannot be sustained when, on the contrary, their effect is to subtract from former resources freely available to skilled artisans. *A patent for a combination which only unites old elements with no change in their respective functions, such as is presented here, obviously withdraws what already is known into the field of its monopoly and diminishes the resources available to skillful men.* This patentee has added nothing to the total stock of knowledge, but has merely brought together segments of prior art and claims them in congregation as a monopoly. [Emphasis added.]

See also, *e.g.*, *Hotchkiss* v. *Greenwood*, 11 How. 248; *Pickering* v. *McCullough*, 104 U.S. 310; *Thatcher Heating Co.* v. *Burtis*, 121 U.S. 286; *Florsheim* v. *Schilling*, 137 U.S. 64; *Heald* v. *Rice*, 104 U.S. 737; *Fond Du Lac County* v. *May*, 137 U.S. 395; *Busell Trimmer Co.* v. *Stevens*, 137 U.S. 423; *Richards* v. *Chase Elevator Co.*, 158 U.S. 299; *Grinnell Washing Machine Corp.* v. *Johnson Co.*, 247 U.S. 426; *Carbice Corp.* v. *American Patents Co.*, 283 U.S. 420; *Lincoln Engineering Co.* v. *Stewart-Warner Corp.*, 303 U.S. 545; *Toledo Pressed Steel Co.* v. *Standard Parts, Inc.*, 307 U.S. 350; *Marconi Wireless Telegraph Co.* v. *United States*, 320 U.S. 1.

2. Had the court below not ignored the strict "negative rule" emphasized in the *A. & P.* case, *supra*, there is no question that it would have had to declare the patent invalid. Indeed, respondent's assembly of old devices could not be said to constitute the exercise of the inventive faculty no matter how liberally that term is interpreted. For all respondent did here was make a cockpit canopy detachable from an old sliding device by using, in place of permanent attachments, an old detaching device. Or, to express it conversely, the respondent merely made a canopy which included an old detaching device slidable by means of an old sliding device. While this might be described as a "progressive idea" (*Great Atlantic & Pacific Tea Co.* v. *Supermarket Equipment Co.*, 340 U.S. 147, 153), or an exercise of "mechanical skill" (*Reckendorfer* v. *Faber*, 92 U.S. 347, 356), it takes more than a progressive idea or the exercise of mechanical skill to

obtain a valid patent (*Great Atlantic & Pacific Tea Co.* v. *Supermarket Equipment Co., supra; Reckendorfer* v. *Faber, supra*). For it is fundamental that a patent monopoly can only be given as a reward and encouragement for the "exercise of the inventive faculty" (*Densmore* v. *Scofield,* 102 U.S. 375, 378), or "inventive genius" (*Concrete Appliances Co.* v. *Gomery,* 269 U.S. 177, 185; *Mantle Lamp Co.* v. *Aluminum Products Co.,* 301 U.S. 544), or a "flash of creative genius" (*Cuno Engineering Corp.* v. *Automatic Devices Corp.,* 314 U.S. 84, 91).[4]

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[4] Congress, in enacting 35 U.S.C. 103, *supra*, p. 3, appears to have limited the application of the "flash of creative genius" test, *Cuno Engineering Corp.* v. *Automatic Devices Corp.*, 314 U.S. 84, 91, insofar as it could ever be applied to bring into consideration the manner in which an invention was made. *E.g., R. M. Palmer Co.* v. *Luden's, Inc.*, 236 F. 2d 496 (C.A. 3). But no matter how far downward, if at all, Congress revised the standard of invention in codifying the patent law in 35 U.S.C. 103 (compare *Lyon* v. *Bausch & Lomb Optical Co.*, 224 F. 2d 530 (C.A. 2), certiorari denied, 350 U.S. 911, with, *e.g., Stanley Works* v. *Rockwell Mfg. Co.*, 203 F. 2d 846 (C.A. 3), certiorari denied, 346 U.S. 818) it is clear that Congress did not lower the standard of invention to be applied in patentability cases so far as to award patent monopoly protection to the respondent's combination, which plainly lacks invention. See, *e.g., Blish, Mize and Silliman Hardware Co.* v. *Time Saver Tools*, 236 F. 2d 913 (C.A. 10), certiorari denied, 352 U.S. 1004. There is a possibility that the lowering of the standard of invention by the Court of Claims in this case resulted, at least partially, from a belief on its part that Congress in 35 U.S.C. 103 has revised the standard of invention downward. See *Badowski* v. *United States*, 135 C. Cls. 93, the only case cited in the court's opinion in the instant case. Badowski relied on *Lyon* v. *Bausch & Lomb Optical Co., supra.* See also, *Zonolite Co.* v. *United States*, 138 C. Cls. 114. In any event, if 35 U.S.C. 103 is to be accorded any such effect, it should, we submit, be permitted only after review and clarification by this Court.

It is clear, under the cited cases, that the assembly of respondent's combination did not require the exercise of any inventive faculty. In this aspect, the case is much the same as *Hendy* v. *Miners' Iron Works*, 127 U.S. 370, in which the Court held invalid a patent in which the invention claimed was the mounting of an ore feeding cylinder, old in the art, on a timber frame made movable by rollers which were also old in the art. The Court said (127 U.S. at 375):

> Merely putting rollers under an article, so as to make it movable, when, without rollers, it would not be movable, does not involve the inventive faculty, and is not patentable * * *. Moreover, there is no patentable combination between the rollers which make the timbers movable and the feeding cylinder I, mounted upon the timbers. The union of parts is merely an aggregation. The feeding cylinder, mounted upon timbers which have rollers, operates no differently from what it does when mounted upon timbers which have no rollers.[5]

3. It is, of course, impossible to predict the overall effect of the Court of Claims' repudiation of the standard to be applied in determining the patentabil-

[5] The striking similarity between the instant case and the *Hendy* case, *supra*, is shown by the testimony of the respondent's expert witness, appearing at page 140 of the transcript of testimony, that the invention in the respondent's patent consisted of nothing more than the "addition of the carriage or support" between the cockpit canopy and the fuselage of the airplane. It is difficult to imagine how the respondent's introduction of a carriage or support, mounted on an old sliding device and carrying the old detaching device, constituted the exercise of the inventive faculty any more than the introduction by the patentee in *Hendy* of a frame mounted on an old moving device and carrying an old ore feeder device.

ity of a combination of old devices. But even viewed from the single perspective of the Government's military development and procurement programs, it is believed that the decision below will have a far-reaching effect. More than one-half of the patents on which infringement claims have been made against the military departments have involved combinations,[6] and under 28 U.S.C. 1498 all infringement suits against the United States must be brought in the Court of Claims. The standard of invention applied by that court to combination patents is thus in itself of substantial public importance.

CONCLUSION

For the foregoing reasons, it is respectfully submitted that this petition for a writ of certiorari should be granted.

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MAY 1960.

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[6] At the present time alone, 51 administrative claims for patent infringement are being processed by the Department of the Army. Of those, 40 involve patents to mechanical, electrical or electromechanical devices based on combination claims. The Department of the Air Force is processing 99 patent infringement claims, 52 of which are based on patents which involve combinations of mechanical or electrical devices. The Department of the Navy has before it 57 claims for patent infringement, 22 of which are based on patents involving a combination of mechanical or electrical devices.

APPENDIX A

In the United States Court of Claims

No. 471-54

(Decided January 20, 1960)

RAYMOND SAULNIER v. THE UNITED STATES

Mr. Max C. Louis for plaintiff. *Messrs. W. Saxton Seward, Brown and Seward, Samuel L. Davidson, Richard G. Kline, Cushman, Darby & Cushman, Michael Gould*, and *Surrey, Karasik, Gould and Efron*, were on the briefs.

Mr. Francis H. Fassett, with whom was *Mr. Assistant Attorney General George Cochran Doub*, for defendant. *Mr. Albert K. Geer* was on the brief.

OPINION

WHITAKER, *Judge*, delivered the opinion of the court:

Plaintiff, a citizen of France, sues for an alleged infringement of United States Letters Patent No. 2,125,752 issued to him on August 2, 1938, entitled "Removal Roof for the cockpits of aircraft." The patent is on a canopy or roof over the top of the cockpit, which has the quality of being slid back and forth, while the plane is on the ground or in the air to permit ordinary egress and ingress, and the intake or shutting out of the air, and one which also has the quality of being completely and instantly disengaged from the aircraft by pulling a handle in the cockpit, when the pilot wishes to "bail out" in an emergency.

The evidence clearly shows that the defendant infringed the patent in suit, and, since the trial commissioner has so found, and the parties have not excepted to these findings, we find this as a fact without further discussion.

The sole remaining question is its validity, the amount of compensation, if any, for the infringement having been deferred for later determination. The trial commissioner found that it was invalid because anticipated by the prior art. He found that all the elements of plaintiff's patent were old and that plaintiff's combination of them to produce the result obtained was obvious to anyone skilled in the art. The case is not free from doubt, but, taking everything into consideration, we think the combination was not obvious.

We start with the fact that the result obtained by plaintiff had been sought ever since they started putting canopies over the cockpits of fighter planes, without success. This, of itself, would seem to refute the statement that the combination of these old elements was obvious to anyone skilled in the art. It is true, now that we look at the facts in retrospect, that plaintiff's invention seems simple enough. But it is equally true that the mere fact that the patented idea was simple, does not prove that it was invalid. We are concerned here, only, with whether plaintiff's claim was novel in the sense that the word is used in patent law.

As stated, the combination which plaintiff invented was a canopy or roof over a cockpit that was both slidable back and forth and also was completely detachable when desired by means of an instant release mechanism located within the cockpit. Of course the two mechanisms, one for sliding the roof back and forth and the other for completely detaching the roof, did not act conjointly. When one result was desired, one mechanism was used, and when another result was desired, another mechanism was used. The two did not operate at the same time. But no one had invented a canopy that was both susceptible of being slid back and forth and also of being completely detached when desired. Plaintiff invented such a canopy—something no one else had been able to do.

Prior to plaintiff's patent there had been patents granted on canopies which the pilot could completely detach from the aircraft, that would fly off, when desired, as in the Hicks patent relied on by the defendant; but the Hicks patent did not slide back and forth, for normal entry and exit. Also, there had been slidable roofs or canopies, to permit normal entry and exit, as in the Sutton patent, also relied on by

defendant, but this roof and canopy could not be completely disengaged. It is true Sutton claimed that his roof could be slid completely out of the way, "whereby his egress from the airplane is not hazardous." This may or may not have been so; but the roof was still there, adjacent to the cockpit the pilot wished to leave in a hurry, his plane riddled with machinegun bullets, perhaps, and on fire, and it provided many "catching-places" for the strap of a parachute or the pilot's clothing. Also, this device was not instantaneous. After the emergency occurred, the pilot was still forced to open the canopy in order to get out. In plaintiff's device the pilot need only to pull the releasing mechanism and the roof was instantly blown completely away, leaving nothing, in the way of a roof, to interfere with the pilot's escape.

It is significant that the defendant adopted plaintiff's device instead of Sutton's.

The Joyce patent calls for a windshield that was slidable back and forth. This, too, is but one part of plaintiff's invention, but the commissioner says the hold-down clamps of, not the Joyce, but the Hicks patent, which was releasable but not slidable, might have been used to instantaneously detach the cockpit cover. Unfortunately, for defendant, Joyce did not do so, nor did anyone else until plaintiff came along. The same may rightfully be said of the Hathorn patent.

A number of other patents are mentioned in Finding 16, but these, obviously, do not anticipate plaintiff's patent.

The British patent to Petters, et al., has the same vice, or worse, as the Sutton patent. In it the roof is slidable back and forth and, in case of an emergency, it can be opened in the middle and each part folded back beyond the cockpit. But the two sides are still attached to the airplane, and what the wind would do to them, flapping them back and forth, is horrible to contemplate. It may be, as the commissioner suggests, that the wind would tear these two halves off the airplane. This seems to us uncertain, but, if it would, would it do it immediately, before the pilot attempted to escape from the cockpit? Maybe so; maybe not. But in plaintiff's device the pilot, by merely pulling a cord released the means that held the canopy in place, so that there was nothing to keep the slip stream from blowing it away instantaneously.

As much as we respect the opinion of our learned and able

commissioner we cannot agree with him that this patent anticipates plaintiff's patent. Plaintiff's patent is a decided improvement over this British patent, an improvement that might make the difference between life and death to the pilot seeking to escape. In plaintiff's device there is no possibility of the canopy's interfering with the pilot's escape, because the whole thing is immediately blown away.

The British Boulton patent has the same vice as the Sutton patent: the roof is not detachable from the airplane, but remains attached to it at all times.

We agree with the commissioner that the evidence is insufficient to show that the Lockheed Sirius airplane, built for Colonel Charles A. Lindberg, or the Curtiss-Wright Design 75, or the Douglas Aircraft Type O-46A anticipate plaintiff's patent.

There is no question that a combination of old elements to produce a new and useful result is patentable. We discussed this in *Badowski* v. *United States*, 135 C. Cls. 93, 102, et seq., citing cases in support thereof. We refer to what we said there.

A canopy that would slide back and forth, even in flight, was old; a detachable canopy was old. But a canopy that was both slidable back and forth and completely and instantaneously detachable was new. There can be no doubt that such a canopy was useful. Defendant's long continued use of it, to the exclusion of all others, is eloquent testimony of that fact.

We think it is not amiss to say that France has paid plaintiff for the use by the United States of his invention in certain aircraft canopies procured by the United States prior to September 2, 1945. This was done under the Blum-Byrnes Agreements between the United States and France, under which each government undertook to compensate its own citizens for claims against the foreign government. It also might be said that the British Government has purchased from plaintiff a license to use his invention on its aircraft.

Further, at the time of plaintiff's application in the United States Patent Office prior art was cited to show that plaintiff's claim 1 was unpatentable. After argument, however, and an amendment to state that the slidable canopy was "capable of being operated when in flight," the claim was allowed and

a patent was granted. The burden is on the infringer to show that the patent was improvidently granted. It is presumed to be valid. We do not think defendant has carried that burden.

We approve the findings of the trial commissioner as to the patent claims infringed by the several types of aircraft used by the defendant, to wit, the Thunderbolt, the Thunderjet, the Mustang, the Scorpion, the Fury, and the Sky Raider. We have adopted these findings as the findings of the court.

Counsel for the parties have agreed that during the accounting phase of this case, plaintiff shall have the right to present evidence as to other aircraft cockpit canopy constructions embodying structures allegedly falling within the scope of any claim held valid and infringed; and that defendant shall have not less than ninety (90) days' notice of any and all such structures upon which plaintiff intends to rely in said accounting proceedings before being required to present evidence on the further issue of infringement thus tendered for trial for the first time during the accounting phase of this case. Plaintiff notified defendant by a letter dated October 24, 1957, that claims 1 and 6 of the Saulnier patent are also *charged to be infringed* by constructions identified as follows:

ANO1-85FGA-2	Model F9F-2
ANO1-85FG-2	Model F9F-4, -5, -5P
ANO1-85FGD-2	Model F9F -6, -6P, -7, -8
ANO1-245FBA-2	Model F2H-1
ANO1-245FBB-2	Model F2H-2, F2H-2N
ANO1-245FBB-2A	Model F2H-2, -2P
ANO1-245FCA-2	Model F2H-1N

No evidence was presented at the initial trial of this case as to the construction of the above-identified aircraft.

Plaintiff is entitled to recover and judgment will be entered to that effect. The case is remanded to the trial commissioner, pursuant to Rule 38(c), to determine reasonable and entire compensation for defendant's unlicensed use of plaintiff's patented invention.

BARKSDALE, *District Judge*, sitting by designation; LARAMORE, *Judge*; MADDEN, *Judge*, and JONES, *Chief Judge*, concur.

FINDINGS OF FACT

The court, having considered the evidence, the report of Trial Commissioner Donald E. Lane, and the briefs and argument of counsel, makes findings of fact as follows:

1. This is a patent suit under Title 28 U.S.C., Section 1498, for reasonable and entire compensation for alleged unlicensed use or manufacture by or for the defendant of an invention described in a United States patent. Plaintiff's petition also claims under Title 28 U.S.C., Section 1491, and under the patent laws of the United States, Title 35 U.S.C. At pretrial, the parties agreed to a separation of issues for trial, and that the questions of validity and infringement of the patent in suit by the United States be first determined upon full proofs, findings of fact, and argument of counsel, and that any accounting issue be deferred until the entry of an order sustaining the petition.

2. Plaintiff is a citizen of France residing in Paris, France. On August 2, 1938, United States Letters Patent No. 2,125,752 was issued to the plaintiff on an application for patent filed in the United States Patent Office on December 28, 1936. The patent is entitled "Removable Roof for the Cockpits of Aircraft." Said Saulnier patent 2,125,752 is hereinafter referred to as the patent in suit. All right, title and interest in, to, and under the patent in suit was vested in the Alien Property Custodian on January 18, 1943, and was returned to plaintiff on September 4, 1947, pursuant to the provisions of the Trading With the Enemy Act, Title 50 U.S.C., Appendix 1, and Executive Order No. 9095, as amended. Plaintiff notified defendant in November 1951 of plaintiff's claim for compensation for the unauthorized use by the defendant of the invention covered by the patent here in suit. The defendant denied plaintiff's claim in May 1952.

PATENT IN SUIT.

3. The subject matter in suit relates to the construction of a removable roof or canopy for covering the cockpit of an aircraft, the canopy being both slidable from open to closed positions and detachable from the aircraft. The specification of the patent in suit reads as follows:

> The present invention concerns improvements in removable roofs covering the cockpit of an airplane pilot.

The roof according to the present invention is intended to be opened normally through a sliding displacement and can further, in case of accident or in case of need, be wholly and immediately detached from the body of the airplane.

This arrangement enables the pilot, in case of danger, to immediately get rid of his roof, in order, for instance, to be able to jump with his parachute.

The device according to the present invention is essentially constituted by a frame connected in a detachable manner with two carriages adapted to slide along rails fixed to the sides of the fuselage, these carriages being adapted to be operated from the inside of the airplane by the pilot. This frame carries the roof and the two lateral panels. The whole normally slides along the rails through the carriages. The device is completed by means for permitting the pilot, by a mere operation performed from the inside of the airplane, to release the frame from the carriages by which it is carried.

A preferred embodiment of the present invention will be hereinafter described, with reference to the accompanying drawings, given merely by way of example, and in which:

Fig. 1 is a perspective view of the system, the removable roof being detached from the airplane cockpit;

Fig. 2 is a similar view showing the roof fixed to its carriages and partly moved in a backward direction;

Figs. 3, 4, 5 and 6 are perspective views showing details of the device serving to the fixation of the roof.

As shown by Fig. 1, the detachable roof 1 is made of a frame, consisting of bent pieces 2 and 3, connected together by upper members 4 and 5 and the lower members 9 and 10. The roof proper is fixed to the upper members 4 and 5, this roof being advantageously made of a translucent material. The two lateral panels 7 and 8 are made of a translucent or transparent material fixed to bent pieces 2 and 3 and to upper and lower members 4 and 5, and 9 and 10, respectively.

The lower members 9 and 10 carry fixation members 11, in the form of rings provided with a radial slot 22 (Fig. 6), which serve to connect and secure the detachable roof to carriages 12 and 13 through spindles 14, rigid with rods 15.

Under normal conditions, members 11 are in position in the space between lugs 16 rigid with the carriages, and said members 11 are fixed in this position by spindles 14.

When bell-crank lever 17 is operated by means of control member 34, through cables 18, the branch 19 of this

lever moves in a forward direction and drives rods 15 in the same direction through the medium of pieces 20.

In this movement, the whole of rods 15 moves in a forward direction and spindle 14 leaves the space between lugs 16. Rod 21 is located now opposite the slot 22 of member 11 and the removable roof can be separated from the carriages and got rid of when it is pushed upwardly.

The whole of the mechanism is kept in this position by finger 23. Said finger has been acted upon by branch 20 of lever 17 in the course of the forward movement of rods 15. But as soon as it comes opposite notch 24, said finger is moved back downwardly by its return spring 25 and drops into the notch 24 of piece 20, thus preventing the latter from moving backwardly and spindle 14 from coming back into the space located between lugs 16. Thus, once the operation has been performed, the pilot can release control member 34 without the mechanism coming back to its initial position.

When the roof is in the normal position, in which the frame is secured to carriages 12, 13, rods 15 are in their rear positions and members 11 are locked on spindles 14, in such manner as to assemble all the elements together, the whole being kept in the closed position by spring 26. This position is shown in Fig. 3, corresponding to the fixation of the roof to the carriages as shown by Fig. 2.

In this position, the roof is allowed to slide, as above explained, while remaining assembled with carriages 12, 13, along rails 27, fixed to the longitudinal members of the fuselage.

Carriages 12 are, for this purpose, provided with rollers 28 which roll along rails 27. The movements of the carriages are controlled through racks 29, provided on the carriages, and toothed wheels 30 acting on said racks and operated by the pilot through crank 31, acting through the medium of rod 32 on a small rack 33 in mesh with a small pinion which is not visible on the drawings but which is keyed on the spindle of toothed wheel 30.

It will be readily understood that, with such an arrangement, when the pilot rotates crank 31, he produces a sliding displacement of the whole and of the movable roof along the rails and therefore along the fuselage.

The sliding displacement corresponds to the normal opening and closing movements of the roof.

When, in flight, the pilot wishes to get rid of his roof, for instance in order to jump with his parachute, he operates, in the manner above described, the control member 34 located at the upper front part of the cock-

R. Saulnier
2,125,752

Fig. 1.

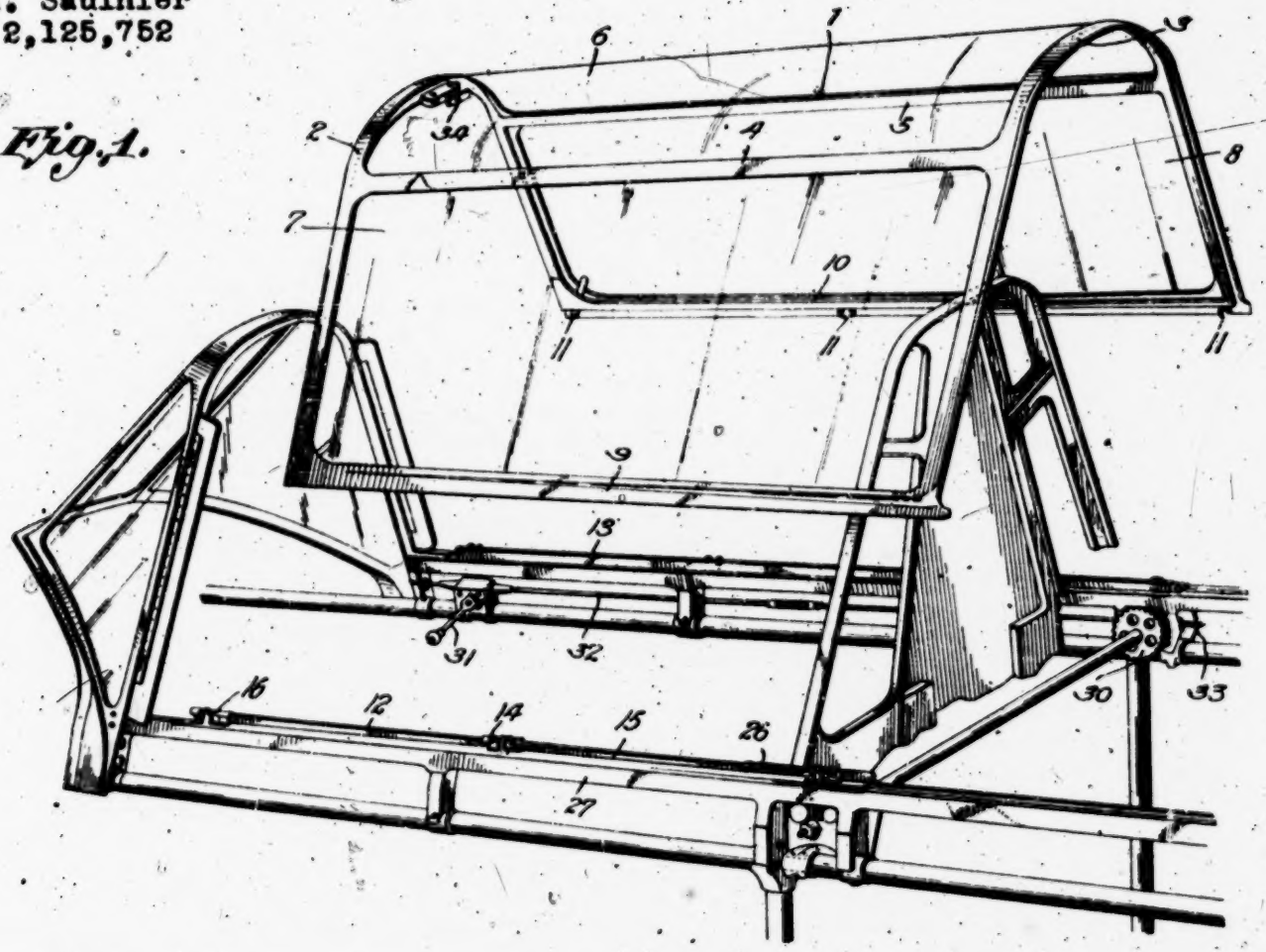


Fig. 3.

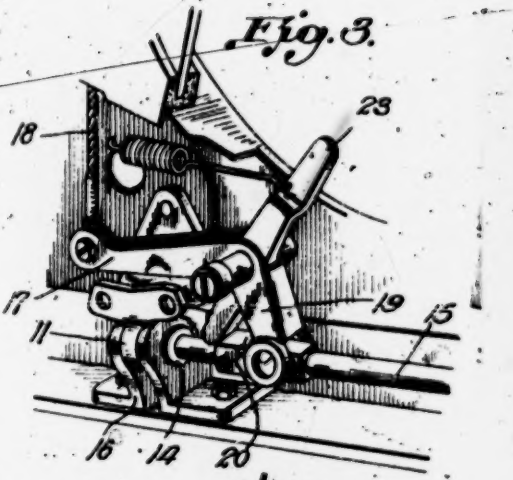
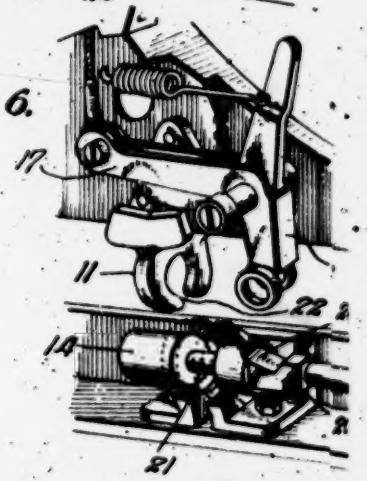


Fig. 6.



549856—60 (Face p. 23 of Appendix)

Fig. 3.

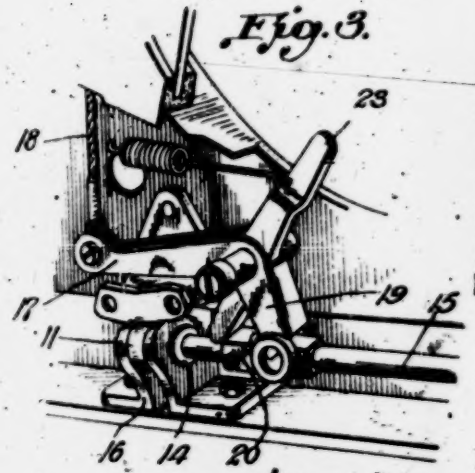


Fig. 4.

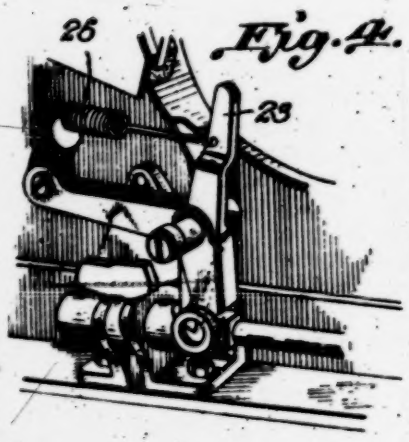


Fig. 6.

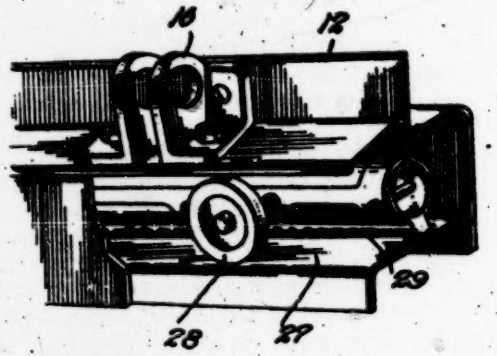


Fig. 2.

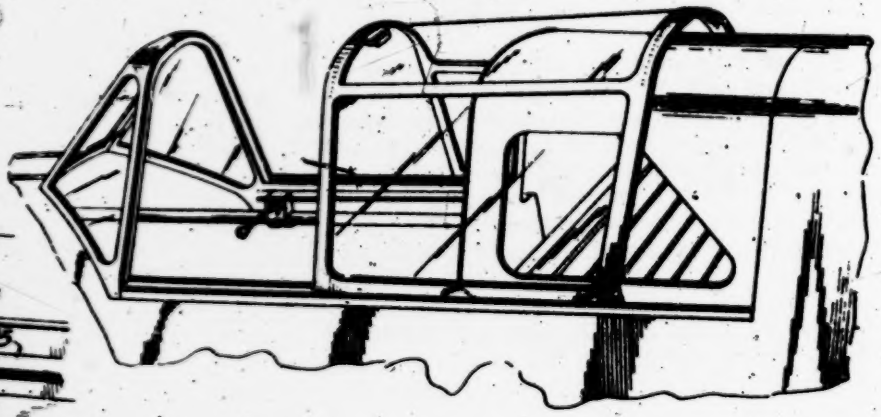
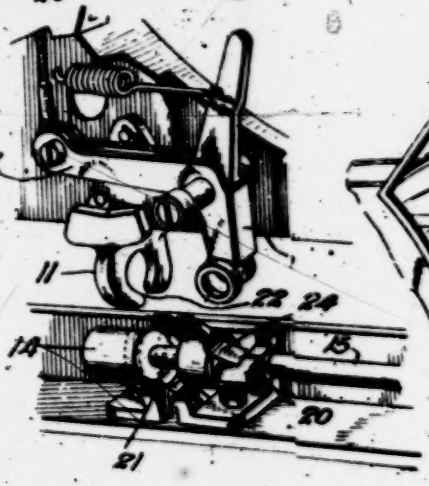


Fig. 6.



pit. This member acts, through cables 18, on bell-crank lever 17 the arm 19 of which drives piece 20 in a frontward direction, said piece 20 being rigid with rods 15. In the course of this frontward movement, finger 23 is rotated, while pulling its return spring 25, whereas spindle 14 leaves the space existing between lugs 16 and therefore releases member 11, which can escape owing to the provision of slot 22 therein, said slot being adapted to accommodate rod 21.

In this movement, after having moved away, finger 23, under the action of its return spring 25, drops into notch 24 and keeps the system in the forward position.

Fixation members 11 carried by the roof structure being thus released from rods 21 carried by the carriages, the whole of the roof can now be lifted and driven away by the action of the wind.

Therefore, it will be readily understood that, with the device according to the present invention, the sliding roof is so devised that the opening and closing displacements thereof are controlled by the pilot from the inside through a mere crank. This arrangement ensures the normal closing and opening of the roof.

On the other hand, when the pilot wants to quickly get rid of his roof, it suffices for him to pull member 34. This movement instantaneously and definitively detaches the roof from the carriages. Thus, during flight, it suffices for the pilot to slightly lift the roof and the latter is driven off by the action of the wind.

In a general manner, while I have, in the above description, disclosed what I deem to be a practical and efficient embodiment of the present invention, it should be well understood that I do not wish to be limited thereto as there might be changes made in the arrangement, disposition and form of the parts without departing from the principle of the present invention as comprehended within the scope of the appended claims.

4. The application which resulted in the patent in suit is generally similar to application No. 394,405 for a French patent, filed in France on December 27, 1935, by Aeroplanes Morane-Saulnier, Societe Anonyme de Constructions Aeronautiques. The oath accompanying plaintiff's application for the United States patent here in suit acknowledged this earlier-filed application for patent in France. The patent claims relied upon by plaintiff here are supported by the disclosure of said application for patent in France. Under the provision of R. S. 4887, 35 U. S. C., 1946 Ed., 32, plaintiff is entitled to the benefit of said filing date, Decem-

ber 27, 1935, in France, for his application in the United States, filed twelve months thereafter under the provisions of 35 U. S. C., 1946 Ed., 21.

CLAIMS IN SUIT

5. Plaintiff has restricted his charge of patent infringement to claims 1, 2, 3, 4, 6, and 7 of the patent in suit. Claim 1 recites a combination of structural elements, and is reproduced with indentations and added emphasis to facilitate identity of the structure recited.

Claim 1

In combination with an aircraft having a cockpit,
(1) a *roof* normally slidable above said cockpit and capable of being operated when in flight,
(2) *means* operative from the inside of said cockpit *for displacing* said roof,
(3) said roof being *detachable* instantaneously from said airplane, and
(4) *means*, operative from the inside of said cockpit, *for detaching* said roof from said airplane.

6. Claim 2 of the patent in suit differs from claim 1 in adding a support for the roof and in adding means for detachably securing the support and roof together. Claim 2 is reproduced with indentations and added emphasis.

Claim 2

In combination with an airplane having a cockpit,
(1) a *roof* for said cockpit,
(2) a *support* for said roof slidable with respect to said cockpit,
(3) *means* operative from the inside of said cockpit *for controlling* the movements of said support with respect to said cockpit,
(4) *means for* detachably *securing* said support and said roof together, and
(5) *means* operative from the inside of said cockpit *for instantaneously releasing* said securing means.

7. Claim 3 in suit differs from claim 2 in that the roof support is defined as *two carriages*. Claim 4 differs from claim 3 in that it recites *two rails* on the cockpit to carry the carriages, and also recites *annular elements and spindles* to lock the roof to the carriages. Claim 6 is like claim 1, but recites a *closing element* for a *space* for pilot or passengers instead of reciting a roof for a cockpit. Claim 7 is gen-

erally similar to claim 6, but adds a recital of a slidable *support* for the closing element, and adds *means for detachably securing* the support and closing element together. Claims 3, 4, 6 and 7 are reproduced in full:

Claim 3

In combination with an airplane having a body provided with a cockpit, a roof for said cockpit, two carriages for supporting said roof slidable with respect to said body on either side of said cockpit, means operative from the inside of said cockpit for controlling the sliding displacements of said carriages with respect to said cockpit, means for detachably securing said roof to said carriages, and means operative from the inside of said cockpit for instantaneously bringing said securing means out of action.

Claim 4

In combination with an airplane having a body provided with a cockpit, a roof for said cockpit, two rails extending on either side, respectively, of said cockpit, carried by said body in the fore and aft direction of said airplane, two carriages for supporting said roof slidable along said rails, respectively, means operative from the inside of said cockpit for controlling the sliding displacements of said carriages with respect to said rails, registering annular elements carried by said roof and said carriages respectively, in coaxial relation, pins adapted to engage in all of said annular elements for securing said roof to said carriages, and means, operative from the inside of said cockpit, for moving said pins out from at least one of said cooperating annular elements whereby said roof is detached from said carriages.

Claim 6

In combination with an aircraft having a space for pilot or passengers, a closing element for said space normally slidable with respect to said space in a fore and aft direction, capable of being operated when in flight, means operative from the inside of said space for displacing said closing element, said closing element being detachable instantaneously from said aircraft, and means, operative from the inside of said space, for detaching said closing element from said aircraft.

Claim 7

In combination with an aircraft having a space for pilot or passengers, a closing element for said space, a

support for said closing element slidable with respect to said space in a fore and aft direction, means operative from the inside of said space for controlling the movements of said support with respect to said space, means for detachably securing said support and said closing element together, and means operative from the inside of said space for instantaneously releasing said securing means.

8. Plaintiff stipulated that plaintiff "takes the position herein that the patent in suit calls for some actual mechanical (electric, hydraulic, etc.) means for moving the canopy in its normal sliding operation; and consistent with this position, does not charge infringement by canopies of the type used on certain trainers, for instance, where there is nothing more than a fixed handle to be grasped and pulled or pushed."

VALIDITY

9. Defendant urged that the Saulnier patent claims in suit are invalid and do not define a patentable invention in view of the disclosures of the sixteen prior patents [1] and two prior uses:

United States Patents

Logan	1,327,339	January 6, 1920
Vredenburgh	1,352,106	September 7, 1920
Cornelius	1,425,808	November 14, 1922
Miller	1,527,263	February 24, 1925
Joyce	1,682,229	August 28, 1928
Hall	1,720,041	July 9, 1929
Smith	1,779,338	October 21, 1930
Alexander, et al	1,790,785	February 3, 1931
Hicks	1,803,018	April 28, 1931
Pivak	1,806,366	May 19, 1931
McCune	1,919,443	July 25, 1933
Hathorn	1,939,051	December 12, 1933
Helwig	2,033,768	March 10, 1936
Sutton	2,073,325	March 9, 1937

British Patents

Petters Limited, et al	412,717	July 5, 1934
Boulton & Paul Ltd., et al	426,438	April 3, 1935

Uses

Curtiss-Wright Design 75	May 13, 1935
Douglas Type O-46A	August 15, 1935

[1] Defendant's exhibit No. 10.

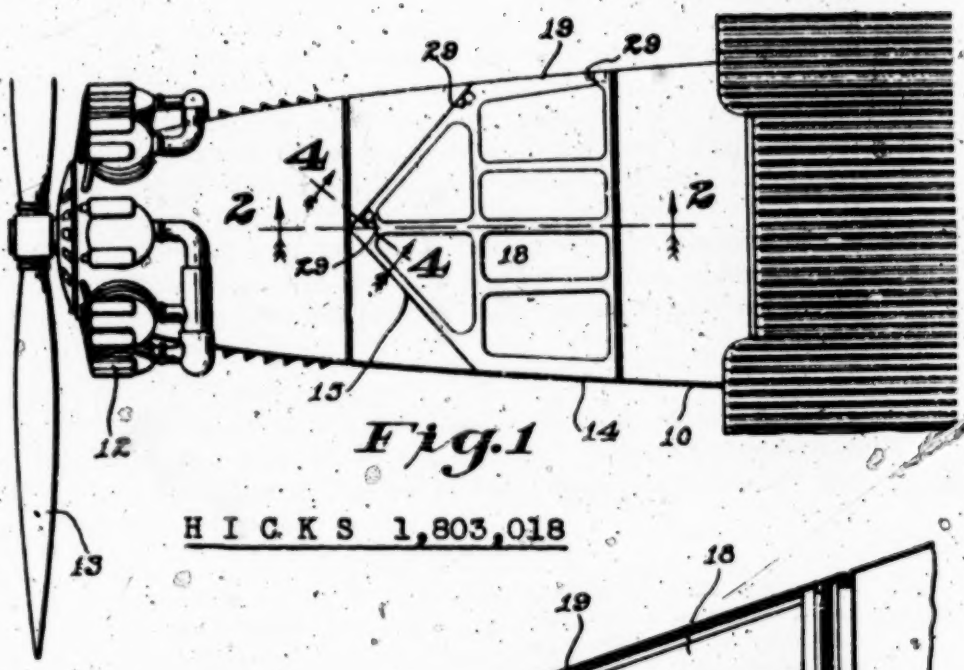

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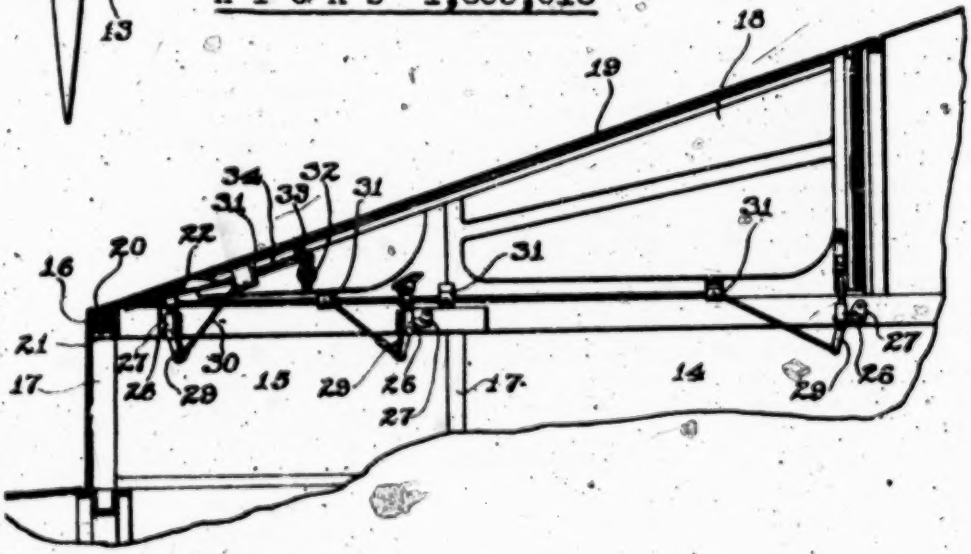
Fig. 1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10. During the prosecution of the Saulnier application for patent in the United States Patent Office the patent examiner cited Hathorn 1,939,051 and Helwig 2,033,768, and rejected claim 1 as originally filed, stating:

> * * * * * *
>
> Claim 1 is rejected as unpatentable over Hathorn. He has a hood over the cockpit and means to slide it back and forth. To provide means for instantaneous release of the hood is held not to involve invention after the teaching of Helwig.
>
> * * * * * *

After claim 1 was amended to specify that the slidable cockpit roof is "capable of being operated when in flight", and after plaintiff's counsel argued that neither Hathorn nor Helwig discloses the new combination of a roof slidable in flight with means for instantaneously detaching the roof, the patent examiner allowed the claims in suit.

11. Defendant's expert considered the Hicks, Joyce, Sutton, and Hathorn patents noted in finding 9 to be the most important of the numerous prior patents urged by defendant.

12. The Hicks patent discloses a *non-slidable* roof over the cockpit of an airplane. Referring to the Hicks patent illustrations, a roof consisting of windows 18 in a frame 19 is removably secured to the cabin of the pilot's top by six holddown clamps 26–27 spaced around the edge of frame 19 and coacting with the upper edge of the airplane fuselage. The clamps 26–27 are simultaneously released by actuation of a single handle 32 inside the cockpit. The disclosure of the Hicks patent is summarized in the following language of the Hicks patent claim:

> In an airplane, a cabin type fuselage having a pilot's cockpit * * *, a relatively light weight roof disposed over said cockpit, * * * a plurality of quickly detachable clamps spaced around the periphery of said roof and secured thereto in position to co-act with the edges of the cockpit to thereby secure the roof thereon, and an operating cable common for all of said clamps secured to said roof, whereby the clamps may be instantly and simultaneously released to quickly detach the roof, said roof being so shaped that the velocity of the slip stream will draw the roof upwardly away from the fuselage when detached and the clamps and operating cable being secured to the roof will likewise be drawn free from the cabin to thereby provide a free and clear opening above the pilot's cockpit.

13. The Sutton patent discloses a *slidable* "cabin top or cockpit closure" for aircraft. Referring to the Sutton patent illustrations, a cockpit closure 18 consisting of a transparent panel 20 in a frame 19 is slidably secured to the airplane fuselage. The lower edge of the frame 19 carries rollers which engage in tracks 17 adjacent the edges of the cockpit 14. The closure 18 in its rearward position extends rearward of the pilot's headrest 16, and in its forward position partially covers the cockpit 14 as shown in the lower illustration. A handle inside the cockpit is connected by a pulley and cable to enable the pilot to slide the closure 18 forward and to lock it in any one of a plurality of positions. An elastic cord 25 is connected to the closure to urge the closure to the extreme rearward position when the pilot releases the operating handle from a positioning notch. The Sutton patent specification states:

> • • • The utility of this construction will be appreciated by pointing out that, *when in flight*, the pilot will have closed the screen to protect his head and shoulders from the windstream. Should an emergency arise whereby it is necessary for him to leave the aircraft, he simply taps the handle 34 upwardly, whereupon he is left with a *fully opened* cockpit whereby his egress from the aircraft is not hazardous. Likewise, the handle 34 and its associated structure are so organized that there is no chance of their becoming entangled with the clothing or parachute of the pilot. [Emphasis added.]

• • • • •

14. The Joyce patent discloses a *slidable* windshield adapted to vary the size of the cockpit opening. Referring to the Joyce patent illustrations, a windshield 16 comprising a transparent panel 17 held in a frame 18 is supported for sliding movement in fore and aft directions. The Joyce specification states that the size of the windshield is preferably such that the forwardly extending portion of the cockpit 14 is completely covered by said shield when in the position shown in figure 2. The windshield frame 18 is provided with supporting aprons 19, and the latter are provided with rollers 20 operable in channel-shaped longitudinal rails 21 attached to the aircraft fuselage. Rotation of the handgrip 26 operates cams 25 to disengage latch bars 22 and thus allow free movement of the

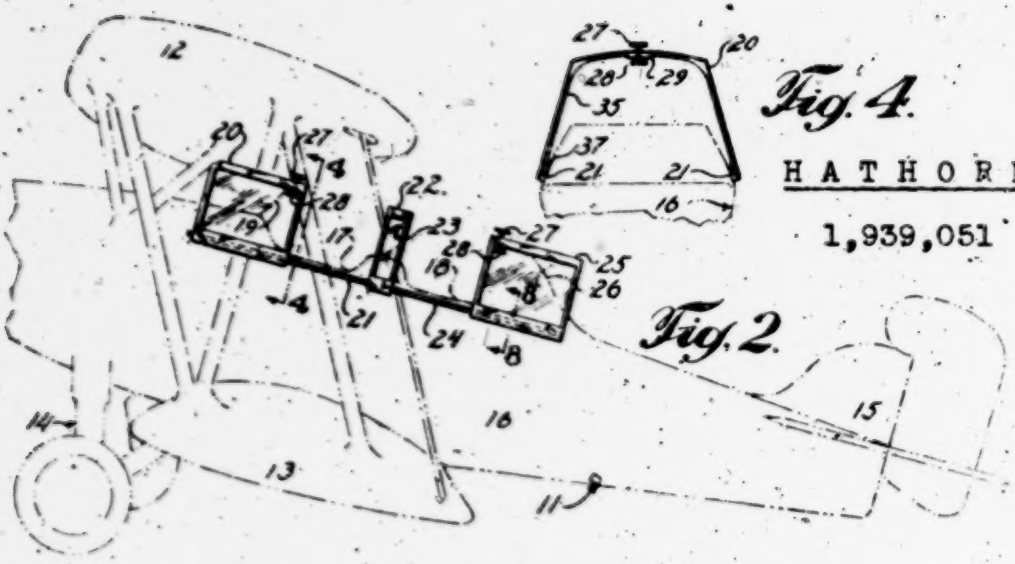
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Fig. 4.
HATHORN
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Fig. 2.
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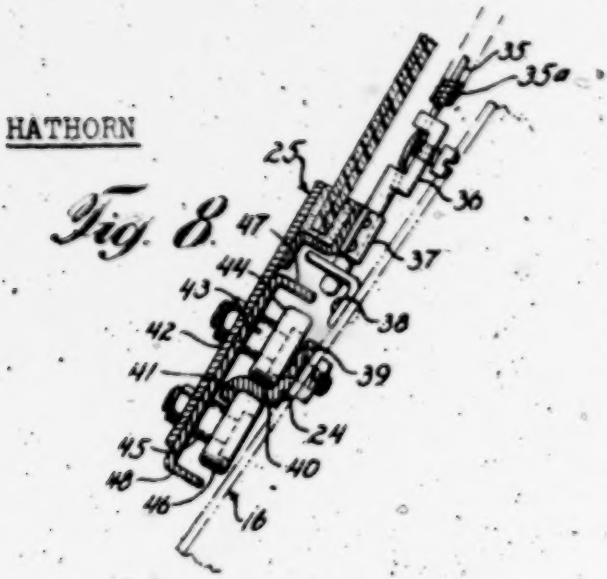
HATHORN
Fig. 8.
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FIG. 1.

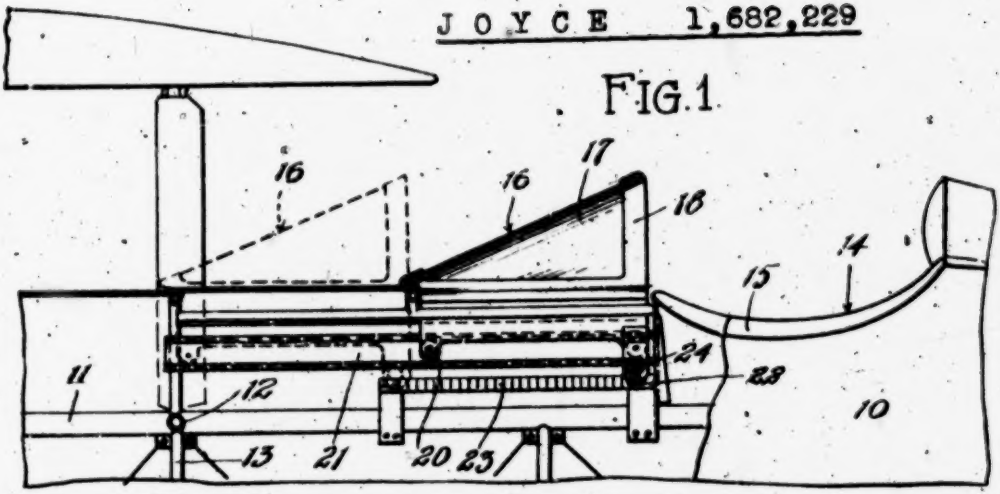


FIG. 2.

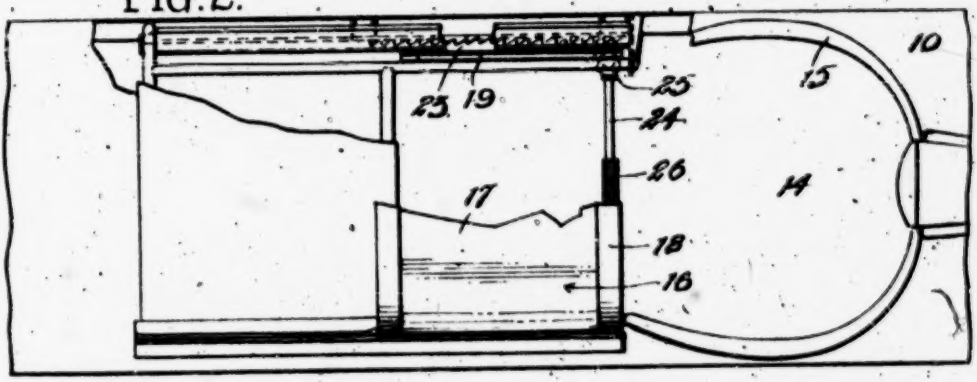


FIG. 3.

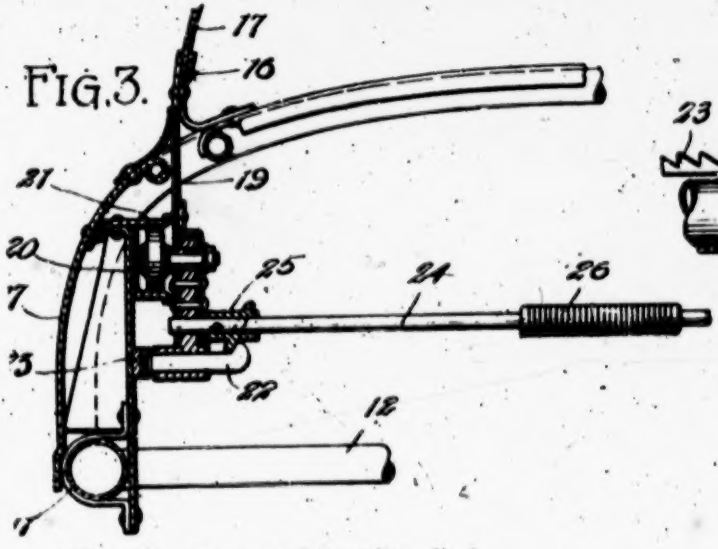
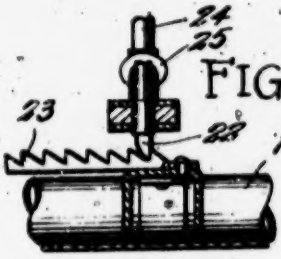


FIG. 4.



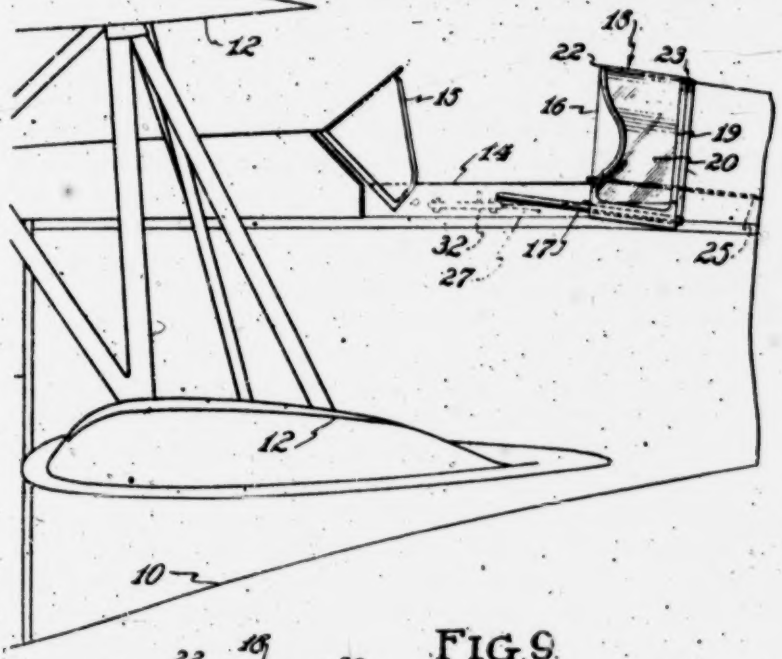
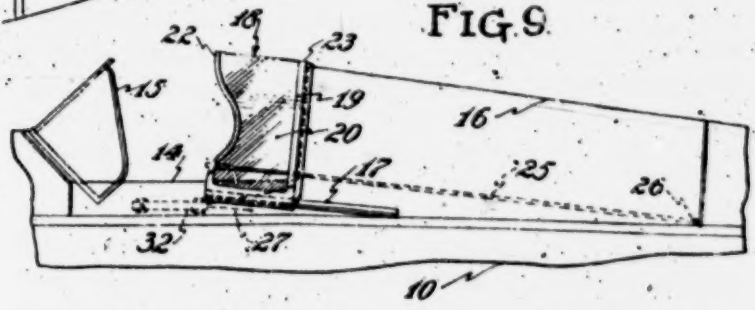


FIG. 9



windshield in either direction. The Joyce patent adjustable windshield is capable of being operated from inside the cockpit when in flight, but only by pushing or pulling. No mechanical means are provided.

15. The Hathorn patent, cited by the patent examiner, discloses a *slidable* transparent cabin top for open cockpit aircraft. The Hathorn cabin tops may be operated during flight, but only by pushing and pulling. No mechanical means are provided. Referring to figures 2, 4, and 8 of the Hathorn patent drawings, a cabin top 20, shown in the open

position in figure 2, is supported for sliding movement on rails 21 to cover the forward cockpit 17. The rear cabin top 25, also shown in the open position, is mounted for sliding movement on rails 24 to cover the rear cockpit 18. A handle 28 is provided on the inside of each cabin top to enable the occupants to adjust the position of the cabin top along the supporting rails during flight. A locking mechanism 29 is connected by cables 33 to operate a plurality of latches 36 for securing the cabin top in adjusted position. The cabin tops are carried by supporting plates 42 which are provided with rollers 44 and 46 engaging the rails 21 or 24.

16. The Logan patent discloses a protective hood for aircraft comprising a plurality of pivotally supported arcuate segments adapted to nest together in the cockpit. The Logan hood is neither slidable nor jettisonable. The Vredenburgh patent discloses a pivoted windshield for one side of the basket of a captive balloon. The Vredenburgh shield is instantaneously detachable but is not slidable. The Cornelius patent discloses an escape mechanism for cabin aircraft comprising releasable doors in the cabin floor. This construction enables the pilot to drop his passengers and their seats downward. The Cornelius patent does not suggest a slidable or a detachable cockpit canopy. The Miller patent discloses spring-operated hinged doors covering a parachute compartment rearward of an open cockpit. The Hall patent discloses a cabin aircraft having a releasable roof hatch above each passenger seat. The several hatches are releasable simultaneously, but are not slidable. The Alexander, et al. patent discloses a cockpit roof window slidable in fore and aft directions by means of a crank-operated mechanism. The Alexander roof window is not jettisonable. The Smith patent discloses another arrangement of trapdoors in the cabin floor for dropping passengers and their seats downward. The Pivak patent shows an adjustable cover for cockpits formed by a series of arcuate segments, similar to that disclosed in the Logan patent, but the Pivak cover is slidable fore and aft to various positions. This Pivak patent was the subject of an earlier suit in this court, *Joll Perry, formerly J. L. Pivak*, v. *United States*, 112 C. Cls. 1, decided March 1, 1948, wherein claim 1 of the Pivak patent was held to be invalid over prior patents. The McCune patent re-

lates to power-operated vehicle exit doors. The Helwig patent, cited against the Saulnier application by the patent examiner, discloses a safety exit for an aircraft gunner's compartment or turret. The exit comprises an airtight trapdoor secured in the bottom floor of the gunner's compartment by quick-release latches which allow the door to be jettisoned in an emergency. The Helwig trapdoor is pivotally supported for non-emergency use, and is not slidable and is not adjustable to various positions during flight.

17. The British Petters, et al. patent discloses the broad combination of a cockpit canopy slidable in the fore and aft direction and also instantaneously openable in an emergency. The cockpit canopy is not detachable. Referring to figures 1, 2, and 4 of the British Petters patent drawings, the pilot's cockpit *a* is provided with a fixed windshield *s* and a slidable hood. The slidable hood or canopy is formed in two parts, *d* and *e*, hinged about substantially horizontal axes, *g* and *h*. The members to which the hinged parts are attached are mounted upon fixed guides *j* and *k*, whereby the hood may be moved forward so as to uncover the cockpit *a* and enable the pilot to enter or leave the same. In order to secure quick release in an emergency, the two portions *d* and *e* of the pilot's cockpit roof may be thrown open by releasing a quick-release pin *m* at the inside top of the canopy as shown in figure 2, the open canopy being illustrated in dotted lines. The gunner's cockpit *b* is provided with a roof of the pivoted segment type disclosed in the Logan and Pivak patents discussed in finding 16. The British Petters patent discloses a cockpit roof structure which is slidable in flight and also instantaneously openable in an emergency. The British patent does not disclose any details of mechanisms or handles for moving the pilot's cockpit slidable roof fore and aft on the fixed guide rails *j* and *k*.

18. The British Boulton, et al. patent discloses a slidable cockpit canopy construction for aircraft. Referring to figures 3 and 4 of the Boulton patent drawings, an aircraft cockpit is provided with a fixed windshield 10, a slidable cockpit roof 14, and a fixed rear roof section 13. The slidable roof 14 is mounted on rollers 20 positioned in channels 17 and 18, there being one channel on each side of the cockpit.

PETTERS

British
412,717

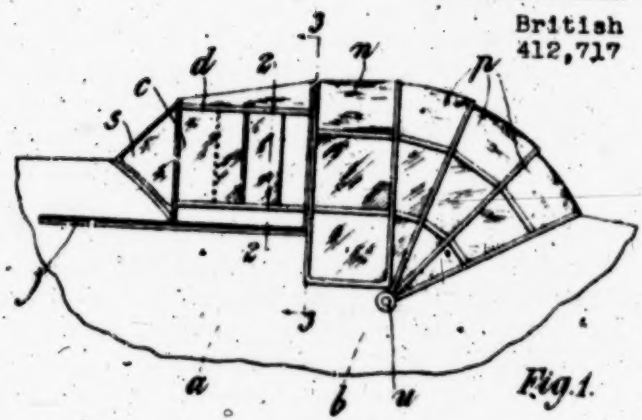


Fig.1.

Fig.2.

PETTERS

PETTERS

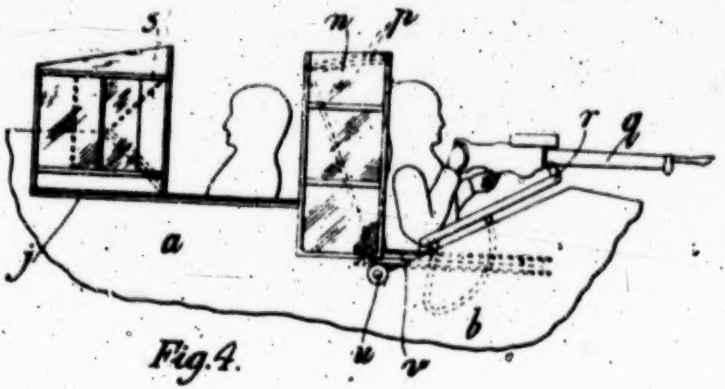


Fig.4.

BOULTON

British
426,438

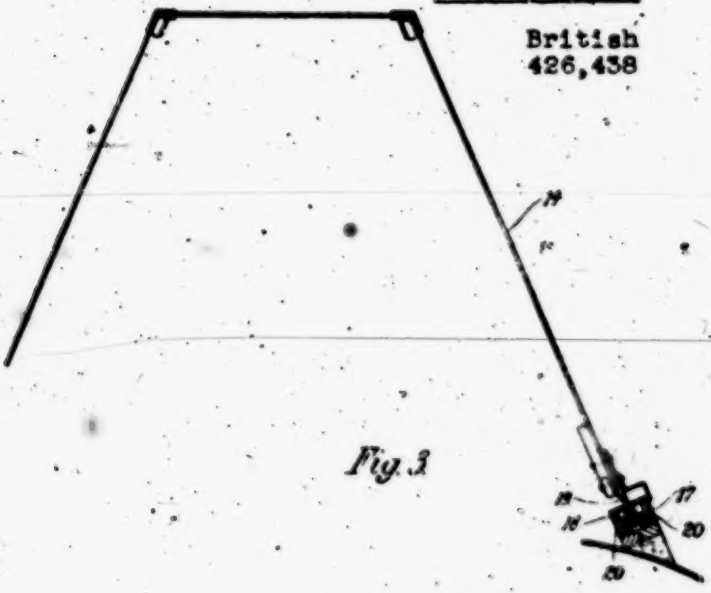


Fig 3

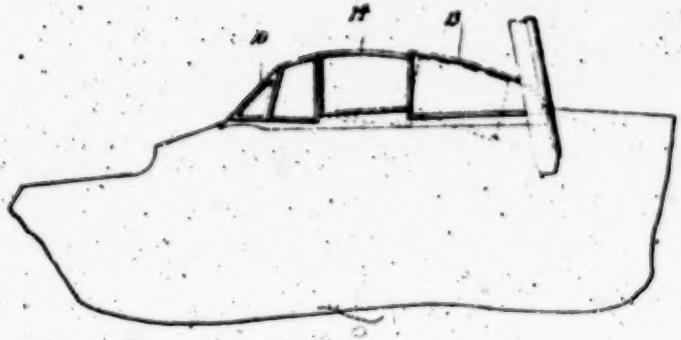


Fig 4

The Boulton patent specification suggests—

* * * * *

> Means should be provided for enabling the pilot to effect the movement of the sliding component, such as suitable *handles* affixed thereto, or *alternatively* a *winch* and handle, or a *quick thread screw*. Further suitable

locking gears should be provided for retaining the sliding component in either the closed or the open position, or, if desired, in intermediate positions as well.

Further the attachment of the slidable component of the cover to the aircraft through the track must be such as to ensure that it will be securely held and easily *operable under all conditions of flight* and of the varying air pressures to which the cover is thereby subjected. [Emphasis added.]

* * * * *

The British Boulton patent discloses a roof normally slidable above a pilot's cockpit and capable of being operated when in flight, and suggests mechanical means for displacing the roof under all conditions of flight which would mean that the displacing means must be operable from inside the cockpit. The Boulton patent does not suggest means for detachably securing the roof 14 to the supporting lugs 19, figure 3, nor does said patent suggest that the slidable roof might be jettisonable.

19. As noted in this court's special findings[8] of fact in the *Joll Perry* case cited above, a Lockheed Sirius airplane, built for Col. Charles A. Lindbergh, flight tested in 1930, and placed on public exhibition about 1933, included a slidable cockpit canopy. The transparent front canopy section was mounted at its lower side edges for sliding movement on track sections secured adjacent to the top edge of the front cockpit and on the outside thereof. The evidence in the present case does not indicate whether or not the Lockheed Sirius slidable canopy was jettisonable, nor does it indicate the specific means utilized for sliding the canopy fore and aft.

20. The Curtiss-Wright Design 75 airplane canopy is described in a series of affidavits and drawings. Curtiss-Wright drawing 84256,[9] entitled Cabin Assembly—Design 75, dated February 11, 1935, shows a slidable cockpit canopy. The design 75 canopy is provided with rollers which engage rails secured to the fuselage. The drawing shows no mechanical means for moving the canopy fore and aft, and does not clearly show that the canopy is jettisonable. Affidavits made in 1952 by Curtiss-Wright employees state that the design 75 airplane was equipped in 1935 with a slidable

[8] Findings 35–36, 112 C. Cls. 1, 84.
[9] Defendant's exhibit 13.

and sheddable cockpit canopy with crank means to operate the canopy and with locking means to lock the canopy in various positions. Said affiants also stated that the design 75 airplane was flight tested in 1936, that the canopy was jettisoned intentionally during a flight between August 7 and September 29, 1935, and that the canopy was provided with lock and release means similar to those used later on P–40 type airplanes. This evidence is insufficient to warrant a finding that the design 75 airplane canopy included in 1935 each and all of the elements recited in the specific combinations set forth in the claims in suit.

21. The Douglas Aircraft Type O–46A airplane canopy is described in affidavits, drawings, and photographs. Douglas Aircraft Company layout drawing 5003684, dated May 22, 1955, and production drawing 5005806, dated August 15, 1935, disclose alternative forms of pin-type locks to secure a cockpit canopy to sliding frame support members. The O–46A cockpit canopies are shown in a series of photographs[4] dated January 29, 1936. Ninety airplanes of the O–46A type were delivered to defendant's agencies during the period February 28, 1936, through March 1, 1937. The O–46A canopy comprised four separate sections including a slidable and releasable forward section, then a fixed section, then two more slidable but non-releasable sections. The evidence shows no mechanical means for moving the O–46A canopies fore and aft. The evidence is insufficient to warrant a finding that the O–46A airplane canopy construction was successfully operated and jettisoned prior to December 27, 1935, the filing date to which plaintiff is entitled (finding 4). Also the evidence is insufficient to warrant a finding that the O–46A canopy construction included prior to said date each and all of the elements recited in the specific combinations set forth in the patent claims in suit.

22. The evidence as to the Lockheed, Curtiss-Wright, and Douglas airplane canopy constructions does not warrant a finding that the subject matter of the plaintiff's patent claims in suit was known to or used by others in this country, or was in public use or on sale in this country, prior to December 27, 1935.

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[4] Defendant's exhibit 15 A–E inclusive.

23. Claim 1 recites a three-element combination comprising (1) a slidable detachable roof, (2) means for displacing the roof, and (3) means for detaching the roof. This claim is valid.

24. Claim 2 recites a five-element combination comprising broadly (1) a roof, (2) a slidable support. (3) means to control the movement of said support, (4) means to secure the roof to the support, and (5) means to release said securing means. This claim is valid.

25. Claim 3 in suit recites a five-element combination similar to that of claim 2, but specifies the support for the slidable roof as *two carriages on either side of the cockpit.* This claim is valid.

26. Claim 4 in suit recites a five-element combination similar to that of claim 3, but specifies two rails carried by the airplane body along which the two carriages slide, and also specifies registering annular elements carried by the roof and carriages together with pins engageable with the annular elements for securing the roof to the carriages. Thus in claim 4, the claim 2 support for the roof is defined as two rails and two carriages, and the claim 2 means for detachably securing the support and the roof together is defined as annular elements engaged by pins. This claim is valid.

27. Claim 6 in suit recites a three-element combination comprising (1) a slidable detachable closing element, (2) means for displacing the closing element, and (3) means for detaching the closing element. Claim 6 is similar to claim 1 except that it is broader in that it is not limited to a cockpit roof construction. When claim 6 was added by amendment to the Saulnier application for patent, counsel for plaintiff wrote:

* * * * *

> This new claim, * * * differs from claim 1 (with which it corresponds, * * *) in that it does not specifically state that the closing element is a roof cooperating with a cockpit. It will be readily understood that the device according to the invention could, without any change in the principle thereof, be applied to a closing element constituting, for instance, a lateral, or even an under, panel.

* * * * *

This claim is valid.

28. Claim 7 in suit recites a five-element combination comprising (1) a closing element, (2) a slidable support, (3) means for controlling the movement of said support, (4) means detachably securing said support to said closing element, and (5) means to release the securing means. Claim 7 is similar to claim 2 except that it is broader in that it is not limited to a cockpit roof construction. This claim is valid.

INFRINGEMENT

29. Plaintiff charges infringement of the six patent claims in suit by specific aircraft made for, delivered to, and/or used by defendant in the period December 9, 1948, to December 9, 1954. These aircraft, illustrated in plaintiff's exhibits 3 through 8, and the claims asserted there against defendant are identified in the following table:

Name	*Maker*	*Type*	*Patent Claims*
Thunderbolt	Republic Aviation Corp.	P-47D	1, 2, 3, 4, 6, 7
Thunderjet	Republic Aviation Corp.	F-84	1, 2, 3, 4, 6, 7
Mustang	North American Aviation.	P-51D	1, 2, 3, 6, 7
Scorpion	Northrop Aircraft	F-89D	1, 2, 6, 7
Fury	Grumman Aircraft	FJ-2	1, 6
Sky Raider	Douglas Aircraft Co.	AD-6/7	1, 2, 3, 6, 7

30. Defendant admits that the aircraft cockpit cover mechanisms illustrated and described in material filed in response to the call of the court dated February 29, 1956, represent structures of typical aircraft made for, delivered to, and/or used by defendant in the period stated in finding 29.

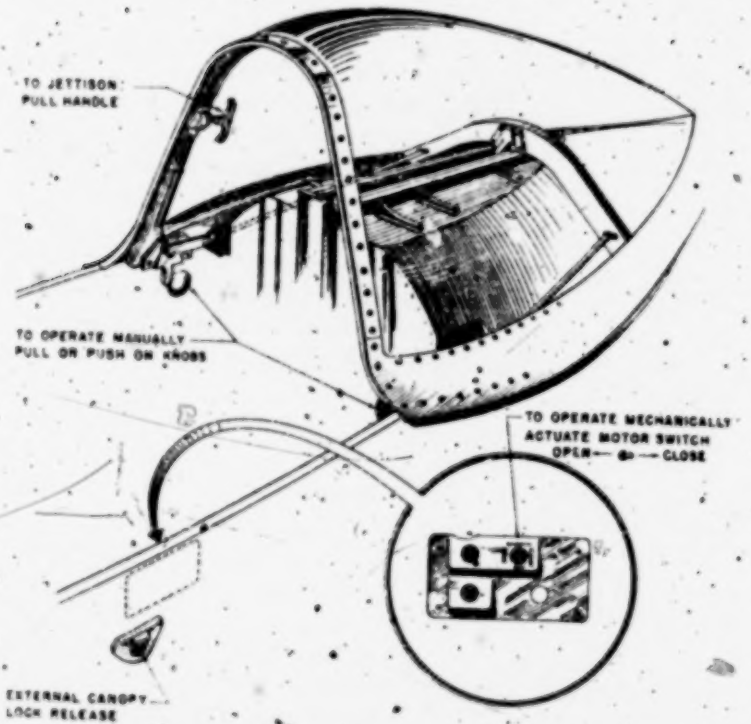
31. The Thunderbolt aircraft has a transparent bubble canopy over the pilot's cockpit. The canopy is supported for fore and aft sliding movement on three rollers which are carried by plates detachably secured to the canopy. There is one roller on either side of the cockpit and the third roller is at the rear central portion of the canopy. A channel-type track secured to the fuselage is provided for each of the three rollers. An electric motor operating through a clutch, sprockets, and a driving chain is connected to the canopy through the rear canopy support for electrically moving the canopy in fore and aft directions. A jettison lever is secured inside the canopy and is connected through cables,

levers, and rod assemblies to simultaneously release all the roller-carrying plates from interlock with plates secured to the canopy itself. The Thunderbolt sliding canopy construction also includes knobs secured to the inside of the canopy for manual movement of the canopy in fore and aft directions by the pilot. Some of the details of the Thunderbolt canopy jettison mechanisms are shown in U. S. patent 2,445,438 issued to Republic Aviation Corporation July 20, 1948. The Thunderbolt canopy is illustrated on page 25.

32. The Thunderbolt sliding canopy construction includes a combination of elements like those recited in claim 1 in suit and which function in the same manner to produce the same result. Claim 1 is found to be infringed by defendant's Thunderbolt aircraft. The additional elements recited in claims 2, 3, 4, 6, and 7 of the patent in suit are also found to be present in the Thunderbolt aircraft. Such additional claims are also found to be infringed by the Thunderbolt aircraft.

33. The Thunderjet aircraft also has a transparent bubble canopy over the pilot's cockpit. The canopy is supported for fore and aft sliding movement on three roller devices engaging tracks secured to the aircraft fuselage. The roller devices are detachably secured to the canopy frame by jettison mechanisms employing explosive charges. The Thunderjet canopy is slidable in fore and aft directions during flight by means of an electric motor connected by a pinion gear and drive chain to the canopy frame. The jettison mechanisms may be operated electrically by means of a jettison switch on the main instrument panel within the cockpit. Closing the jettison switch fires an explosive charge in each jettison mechanism to disconnect each roller device from the canopy frame. The Thunderjet canopy release differs from the Thunderbolt canopy release illustrated above in that the jettison mechanism is operated by electrically-fired explosive charges rather than by a lever, cables, and rod assemblies.

34. The Thunderjet sliding canopy construction includes a combination of elements equivalent to those recited in claim 1 in suit and which function in a similar manner to produce the same result. Claim 1 is found to be infringed by defendant's Thunderjet aircraft. The additional elements recited in claims 2, 3, 4, 6, and 7 of the patent in suit are also


TO JETTISON PULL HANDLE
TO OPERATE MANUALLY PULL OR PUSH ON KNOBS
TO OPERATE MECHANICALLY ACTUATE MOTOR SWITCH OPEN — CLOSE
EXTERNAL CANOPY LOCK RELEASE

found to be present in the Thunderjet aircraft. Such additional claims are also found to be infringed by the Thunderjet aircraft.

35. The Mustang (P-51D) aircraft likewise has a transparent bubble canopy supported on three trucks which slide in tracks installed within the fuselage contour lines. The canopy is slidable in fore and aft directions by means of a cable and crank assembly operated from within the canopy by a crank at the right side of the cockpit. The slidable canopy is locked to each of the three supporting trucks by means of pin and latch devices. An emergency release handle is provided in the right forward side of the cockpit, making it possible to jettison the sliding canopy at any position between closed and full open. The release or jettison handle is connected to the pin and latch devices by means of cables, links and slides.

36. The Mustang sliding canopy construction includes a combination of elements like those recited in claim 1 and which function in a similar manner to produce the same result. Claim 1 is found to be infringed by defendant's Mustang aircraft. The additional elements recited in claims 2, 3, 6 and 7 of the patent in suit are also present in the Mustang aircraft. Such additional claims are also found to be infringed by the Mustang aircraft canopy construction.

37. The Scorpion (F–89D) aircraft includes a cockpit canopy supported by three trucks and moved fore and aft on its tracks by an electric motor connected to the canopy through an endless chain. Control switches for the motor are provided within the cockpit for both the pilot and an observer. The canopy is slidable to various positions either by the electric motor or by hand. In the fully closed position, the canopy is sealed to the fuselage by an inflatable rubber canopy seal. The Scorpion aircraft includes a canopy jettison mechanism operated by compressed air. Pneumatic cylinders positioned on each side of the cockpit are provided with upwardly extending piston rods adapted to engage striker plates on the canopy frame. When compressed air from an air st. age bottle is admitted to the pneumatic cylinders, the rods engage the canopy frame, canopy fastening hooks are unlocked, and the canopy is jettisoned from the aircraft. A canopy jettison control valve is located within the cockpit. The construction of the connection between the trucks or carriage and the canopy frame itself is not clearly disclosed in the evidence received at the trial. The Scorpion canopy is jettisonable only from the forward or closed position.

38. The Scorpion sliding canopy construction includes a combination of elements like those recited in claim 1 in suit. These elements function in a similar manner and produce the same result as those disclosed and claimed in the Saulnier patent. This claim is found to be infringed by defendant's Scorpion aircraft construction. The similar elements recited in different language in claim 6 in suit are also present in the Scorpion canopy construction. Claim 6 is also found to be infringed by defendant. No finding is made with regard to the possible infringement of claims 2 and 7, also asserted by plaintiff, in view of the lack of evidence of the actual means employed in the Scorpion con-

struction for securing the canopy support and the canopy together.

39. The Fury aircraft includes a cockpit canopy slidable fore and aft on tubular tracks at the sides of the cockpit. A jackscrew operated by an electric motor is provided to mechanically move the canopy to various positions. A control switch for the motor is located inside the cockpit for operation of the canopy by the pilot. The canopy is secured to roller trucks which engage the tracks. The canopy is provided with an emergency release system operated by an explosive cartridge. Pressure generated by the explosive charge is utilized in a cylinder and piston mechanism to slide the cockpit canopy aft until it is disengaged from the supporting tracks and is jettisoned in the aft direction. The construction by which the roller trucks become disengaged from the tubular tracks during jettisoning of the canopy is not clearly disclosed in the evidence presented at the trial.

40. The Fury sliding canopy construction includes a combination of elements like those recited in claims 1 and 6 of the Saulnier patent in suit. These elements in the Fury construction function in a similar manner and produce a similar result as those recited in said patent claims. These claims are found to be infringed by defendant's Fury aircraft construction.

41. The Sky Raider (AD-6 and AD-7) aircraft includes a cockpit enclosure or canopy slidable fore and aft on tubular tracks mounted inboard of the cockpit edges. The forward end of the enclosure is detachably secured to roller trucks which engage said tracks. The aft portion of the enclosure is provided with rollers which engage a track aft of the enclosure. The enclosure may be moved fore and aft manually by means of handles thereon at the inner forward end of the enclosure. The enclosure may be moved fore and aft by a hydro-mechanical mechanism including a cylinder containing an oil-operated piston connected to the enclosure. This mechanism is also operable by compressed air. The hydro-mechanical mechanism is controlled by a handle accessible inside the cockpit and connected to oil and air valves by cables, rods and levers. The cockpit enclosure may be jettisoned in an emergency by means of explosive charges installed in the connection between the

supporting roller trucks and the forward end of the enclosure frame. An electrical system including a control switch accessible to the pilot within the cockpit is provided to detonate the explosive charges and thereby shear pins allowing the enclosure and its frame to separate from the supporting tracks. The force of the explosive charges gives the forward end of the enclosure an upward thrust to jettison the entire enclosure.

42. The Sky Raider aircraft cockpit enclosure construction includes a combination of elements like those recited in claim 1 of the patent in suit. These elements in the Sky Raider aircraft function in a similar manner and produce a similar result to those recited in said claim. Claim 1 is found to be infringed by the Sky Raider construction. The similar elements and additional elements recited in different language in claims 2, 3, 6, and 7 are also found to be present in the Sky Raider construction. These additional claims are also found to be infringed by defendant's Sky Raider aircraft construction.

43. Counsel for the parties have agreed that during the accounting phase of this case, if any, plaintiff shall have the right to present evidence as to other aircraft cockpit canopy constructions embodying structures allegedly falling within the scope of any claim previously held valid and infringed by the court; and that defendant shall have not less than ninety (90) days' notice of any and all such structures upon which plaintiff intends to rely in said accounting proceedings, if any, before being required to present evidence on the further issue of infringement thus tendered for trial for the first time during the accounting phase of this case. Plaintiff notified defendant by a letter dated October 24, 1957, that claims 1 and 6 of the Saulnier patent are also charged to be infringed by constructions identified as follows:

AN01-85FGA-2	Model F9F-2
AN01-85FG-2	Model F9F-4, -5, -5P
AN01-85FGD-2	Model F9F-6, -6P, -7, -8
AN01-245FBA-2	Model F2H-1
AN01-245FBB-2	Model F2H-2, F2H-2N
AN01-245FBB-2A	Model F2H-2, -2P
AN01-245FCA-2	Model F2H-1N

No evidence was presented at the initial trial of this case as to the construction of the above-identified aircraft.

44. Under certain Blum-Byrnes Agreements between the United States and France, the French government has compensated plaintiff, a French citizen owning the United States patent here in suit, for certain aircraft canopies procured by the United States prior to September 2, 1945. Said action of the French government in compensating the French owner of a United States patent was not based on judicial proceedings concerned with the issues of patent validity and infringement now tendered in the subject case. The transmittal of information by defendant to French officials concerning the cost of some thirty-one thousand canopies procured by defendant during the World War II period does not constitute an admission by defendant that the patent here in suit was considered valid and infringed by such canopies. There is also evidence that the British government has purchased plaintiff's British patent said to correspond to plaintiff's French patent upon which the United States patent here in suit is based. There is no evidence that such purchase of the British patent was based on judicial proceedings concerned with the issues of patent validity and infringement now tendered in the subject case.

CONCLUSION OF LAW

Upon the foregoing findings of fact, which are made a part of the judgment herein, the court concludes as a matter of law that the plaintiff is entitled to recover and judgment will be entered to that effect. The case is remanded to the trial commissioner, pursuant to Rule 38(c), to determine reasonable and entire compensation for defendant's unlicensed use of plaintiff's patented invention.

APPENDIX B

In the United States Court of Claims

No. 471-54

(Filed July 24, 1958)

RAYMOND SAULNIER v. THE UNITED STATES

REPORT OF COMMISSIONER

To the Honorable the CHIEF JUDGE AND ASSOCIATE JUDGES OF THE UNITED STATES COURT OF CLAIMS:

Pursuant to the order of reference in the above-entitled case, the undersigned Commissioner makes the following report of his findings of fact:

1.–22. [Findings 1–22 are substantially identical to Findings 1–22 adopted by the Court of Claims, *supra*, pp. 20–35.]

* * * * *

INVALIDITY OF CLAIMS

23. Claim 1 recites a three-element combination comprising (1) a slidable detachable roof, (2) means for displacing the roof, and (3) means for detaching the roof. This broad three-element combination is disclosed, prior to Saulnier's first effective date, in the British Petters patent discussed in finding 17. In this British patent construction, the pilot's cockpit roof is slidable and is also instantaneously openable for emergency exit by releasing a quick-release pin *m* at the inside top of the roof. No new or different result is secured by releasing a two-part hinged section roof, which may be torn away by the slip stream, as distinguished

from releasing and lifting a one-piece roof so that the slip stream will carry it away. In either case the cockpit is instantaneously opened to allow the pilot to escape or to be ejected from the cockpit. Although the Petters patent does not disclose a specific construction of means for displacing the slidable roof structure, the disclosure that the roof is slidable includes and requires that there be a handle or grip or some other conventional means by which the slidable roof may be displaced fore and aft. The broad combination claimed by claim 1 lacks novelty. The individual elements of the claim 1 combination were all known in the prior art. Cockpit roofs normally slidable and capable of being operated in flight are shown in prior patents such as Sutton, Joyce, Hathorn, Petters, and Boulton. Plaintiff does not deny that slidable cockpit roofs are old. Means operative from inside the cockpit for displacing the cockpit roof are also specifically shown in prior patents such as Joyce, Hathorn, and Boulton. The Boulton patent specification even teaches the equivalence of handles, a winch and handle, or a quick-thread screw for displacing a canopy. Plaintiff's stipulated limitation of his patent claims, noted in finding 8, to *mechanical* means for moving the canopy, as distinguished from fixed handles, is immaterial in view of the Boulton patent teaching of both types. A cockpit roof detachable instantaneously is shown in prior patents such as Hicks, and Hall, and is shown as openable instantaneously in Petters. Jettisonable closures are also shown in the Helwig patent cited by the patent examiner. Claim 1 of the patent in suit is invalid in reciting an old combination of old elements producing no new or unexpected results. The differences between the recital of claim 1 and the prior art patents are such that the subject matter as a whole would have been obvious, at the time the Saulnier construction was devised, to a person having ordinary skill in the airplane cockpit closure field.

24. Claim 2 recites a five-element combination comprising broadly (1) a roof, (2) a slidable support, (3) means to control the movement of said support, (4) means to secure the roof to the support, and (5) means to release said securing means. This combination is broadly disclosed, prior to Saulnier's earliest effective date, in the patents to Joyce, Hathorn, Petters, and Boulton. For example, referring to the

Joyce patent construction, finding 14, the Joyce pilot's shield 16 includes a transparent panel 17 mounted in a frame 18, the latter being secured to supporting plates 19 having rollers 20 to facilitate sliding movement of the shield fore and aft. The supporting plates 19 are obviously secured to the frame 18 by securing means. Claim 2 here in suit does not specify any particular type of securing means other than that said means detachably secure the elements together for instantaneous release. Such detachable securing means are old, as illustrated by the holddown clamps 26–27 of Hicks, finding 12, which are instantaneously and simultaneously releasable to quickly detach a roof structure. It would have been obvious to a person having ordinary skill in the airplane cockpit canopy field to substitute the Hicks patent releasable holddown clamps for the undescribed securing means between the Joyce patent roof frame 18 and slidable supporting plates 19. Likewise, it would have been obvious to one having ordinary skill to utilize such releasable holddown clamps to secure the Hathorn supporting plates 42 to the Hathorn slidable cabin top illustrated hereinbefore. Claim 2 of the patent in suit is invalid in reciting an old combination of old elements producing no new or unexpected results.

25. Claim 3 in suit recites a five-element combination similar to that of claim 2, but specifies the support for the slidable roof as *two carriages on either side of the cockpit*. Such carriages are broadly disclosed in the prior patents of Joyce, Hathorn, and Boulton, mentioned above. For example, referring again to the Joyce patent construction, the supporting plate 19 is provided with rollers 20 carried thereby and is provided with latch bars 22 carried at the lower edge of the plate. Such a plate and roller assembly constitutes a carriage, and the Joyce construction provides such a carriage on either side of the cockpit 14. The specific recital of carriages in claim 3 does not define a construction materially different from that defined in claim 2. The change in terminology does not avoid the teaching of the prior patents noted against claim 2. Claim 3 of the patent in suit is also invalid in reciting an old combination of old elements producing no new or unexpected results.

26. Claim 4 in suit recites a five-element combination similar to that of claim 3, but specifies two rails carried by the

airplane body along which the two carriages slide, and also specifies registering annular elements carried by the roof and carriages together with pins engageable with the annular elements for securing the roof to the carriages. Thus in claim 4, the claim 2 support for the roof is defined as two rails and two carriages, and the claim 2 means for detachably securing the support and the roof together is defined as annular elements engaged by pins. Supporting carriages and rails on which the carriages are slidable are broadly disclosed in the prior patents of Joyce, Hathorn, and Boulton. Joyce shows channel-shape rails 21. Hathorn shows rails 21 and 24. Boulton shows channels 17 and 18. The use of pins slidable into and out of apertured lugs to provide a detachable securing means is disclosed in the prior patents of Smith and Hall, identified in finding 9. Smith describes a pin or bolt carried in a set of guides and provided with an arm engageable with an apertured flange to retain an aircraft trapdoor in place. Hall describes a slide bolt secured to a slide rod mounted in bearings, the bolt being engageable with an apertured hasp to secure a cover above a pilot's seat. No new result flows from making such securing means annular. Claim 4 of the patent in suit is invalid in reciting an old combination of old elements producing no new or unexpected results. The specific supporting means and the specific securing means defined in claim 4 involve simple mechanical constructions equivalent structurally and functionally to those taught by prior patents and would have been obvious to a person having ordinary skill in the airplane cockpit closure field.

27. Claim 6 in suit recites a three-element combination comprising (1) a slidable detachable closing element, (2) means for displacing the closing element, and (3) means for detaching the closing element. Claim 6 is similar to claim 1 except that it is broader in that it is not limited to a cockpit roof construction. When claim 6 was added by amendment to the Saulnier application for patent, counsel for plaintiff wrote:

* * * * *

> This new claim, * * * differs from claim 1 (with which it corresponds, * * *) in that it does not specifically state that the closing element is a roof cooperating with a cockpit. It will be readily understood that

the device according to the invention could, without any change in the principle thereof, be applied to a closing element constituting, for instance a lateral, or even an under, panel.

* * * * *

Claim 6 in suit recites a combination broadly old as disclosed in the British Petters patent. Detachable closing elements, as distinguished from cockpit roofs, are disclosed in the prior patents to Cornelius, Hall, and Helwig, all identified in finding 9 and discussed in finding 16. Claim 6 of the patent in suit is invalid, for the same reasons noted with reference to claim 1, in reciting an old combination of old elements producing no new or unexpected results. The differences between the recital of claim 6 and the prior art patents are such that the subject matter as a whole would have been obvious, at the time the Saulnier construction was devised, to a person having ordinary skill in the airplane fuselage closure field.

28. Claim 7 in suit recites a five-element combination comprising (1) a closing element, (2) a slidable support, (3) means for controlling the movement of said support, (4) means detachably securing said support to said closing element, and (5) means to release the securing means. Claim 7 is similar to claim 2 except that it is broader in that it is not limited to a cockpit roof construction. Claim 7 recites a combination broadly old as disclosed in the patents to Joyce, Hathorn, Petters, and Boulton. Statements made in finding 24 with reference to claim 2 also apply to claim 7. Claim 7 of the patent in suit is invalid in reciting an old combination of old elements producing no new or unexpected results.

29. Summarizing, claims 1, 2, 3, 4, 6, and 7 of the patent in suit are found to be invalid over the disclosures of prior patents (1) in that these patent claims merely recite old combinations of old elements producing no new or unexpected results, and (2) in that the differences between the terminology of these claims and that of the prior art patent are such that the subject matter as a whole would have been obvious, at the time the Saulnier construction was devised, to a person having ordinary skill in the field of removable roofs for the cockpits of aircraft.

30–45. [Findings 30–45 are substantially identical to Findings 29–44 adopted by the Court of Claims, *supra*, pp. 37–43.]

* * * * * *

46. Summarizing, patent claims 1, 2, 3, 4, 6, and 7 of the Saulnier patent have been found to be invalid as stated in finding 29. In the event that the court alters said finding of patent invalidity, then the accused aircraft identified in finding 30 are found to infringe such of said claims as the court holds valid, as particularly set forth in findings 33, 35, 37, 39, 41, and 43.

Respectfully submitted.

DONALD E. LANE, *Commissioner.*

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